

U.S.S.N. 10/604,537

6

03-0138

REMARKS**Introductory Comments:**

Claims 1-20 are pending in the application. The Examiner has withdrawn the allowance of claims 15-20 in view of newly cited prior art. The Examiner has also applied new objections to both the Drawings and Specification. All claims are rejected under the judicially created doctrine of obviousness-type double-patenting. Additionally, claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. Claim 8 is also rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps. Claim 8 is further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Seeters (5,283,528) in view of Watson (5,146,417). Claims 4-6, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Seeters (5,283,528) in view of Watson (5,146,417) as applied to claims 1, 7, and 8 above, and further in view of Gale et al (4,912,397). Claims 15-20, are rejected under 35 U.S.C. 103(a) as being unpatentable over van Seeters (5,283,528) in view of Watson (5,146,417), and further in view of Gale et al (4,912,397). Claims 2-3, 9-11, and 20 are cancelled. The Applicants respectfully request reconsideration of claims 1, 4-8, 12-14, and 15-20.

In Response To The Drawing Objections:

The Drawings were objected to for not showing "generating a voltage differential signal" and also not showing "gain adjusting". Although the Applicants

U.S.S.N. 10/604,537

7

03-0138

feel this material is well understood by those skilled in the art and therefore need not be illustrated as such, the Applicant's nevertheless cancel the aforementioned material. It is therefore believed that the objections to the Drawings are hereby overcome.

In Response To The Specification Objections:

The Examiner objected to the specification due to informalities in paragraph [0037]. Although the Applicants do not believe the filed version of the Application includes the discussed typographical error, the Applicants amend the specification as requested.

In Response To The Claim Objections:

The Office Action objects to claim 1, line 14 as including "scales" instead of "scaled." The Applicants respond by amending claim 1 in accordance with the Examiner's suggestion. Applicants note that this is not a substantive change to claim 1 and merely articulates the Applicants' original intent. The Applicants believe that the aforementioned amendment overcomes any objections to claim 1.

In Response To The Double-Patenting Claim Rejections:

In the Office Action, all of the pending claims, namely claims 1, 4-8, and 12-20, were rejected under the judicially created doctrine of obviousness-type double-patenting in view of US Patent 6,901,801.

In response, a Terminal Disclaimer, signed by the attorney of record, indicating the present application and US Patent 6,901,801 were commonly owned at the time of filing of the present application, is being submitted herewith. It is submitted that the

U.S.S.N. 10/604,537

8

03-0138

enclosed Terminal Disclaimer obviates the double-patenting rejection and that the rejection should therefore be withdrawn.

In Response To The 112 Claim Rejections:

The Examiner objected to for reciting the limitation "differential" in line 10. The Applicants respectfully cancel the rejected claim material. Claim 8 is also rejected for omitting essential steps. In response to the rejection, as mentioned above, the Applicants have cancelled reference to a "differential" and thereby cancelled any requirement for further steps. This rejection is therefore believed to be overcome.

Claim 8 was also rejected for failing to point out particularly and distinctly claim the subject matter which the applicant regards as the invention by including the terms "gain adjusting." The Applicants therefore cancel the aforementioned material.

It is firmly believed that all 25 USC 112 rejections are overcome in view of the aforementioned amendments to the claims.

In Response To The 103 Claim Rejections:

Claims 1, 7, and 8 are rejected under as being unpatentable over van Seeters in view of Watson. According to the Office Action, van Seeters discloses a fixed plate (11) within the housing (7,8). van Seeters allegedly discloses a movable plate (e.g. capacitive plate 15) parallel to fixed plate (20); and the movable plate (e.g., capacitive plate 15) is coupled to the housing (7,8) along at least one edge (e.g. spacing ring 9). van Seeters allegedly discloses a transimpedance amplifier (3) receiving the charge displacement capacitance signal (col. 5, lines 1-9). As depicted in fig. 1, according to the Office Action, van Seeters discloses an analog-to-digital (5) converter for receiving the scaled voltage signal (Col. 3, lines 15-16). The Office Action

U.S.S.N. 10/604,537

9

03-0138

recognizes that van Seeters lacks the detail of a time integrator for integrating a digital voltage signal.

The Office Action alleges that Watson discloses in fig. 1, a time integrator receiving the digital voltage signal in response to initialization parameters and generating an integrated signal therefrom.

Although the Applicants believe that the claims are not obvious in view of the prior art, the Applicants nevertheless amend claims 1 and 8 to include that the voltage polarity of the digital voltage signal provides direct indication of a direction of acceleration, in accordance with page 8, Paragraph [0045]. No new matter has been added. This amendment clarifies that the distance varies with respect to only a single fixed plate, such that polarity of a resulting digital voltage signal indicates the direction of acceleration, which is not disclosed or suggested in the prior art either alone or in combination.

The van Seeters reference is directed to a conventional accelerometer design including analyzing signals as a function of a ratio of capacitances. (column 3, lines 3-12.) van Seeters, however, does not disclose or teach a lone fixed plate-diaphragm accelerometer system generating a digital voltage signal including polarity information for determining acceleration, as recited in claims 1, 8, and 9. van Seeters also does not teach or suggest that application of the van Seeters system would be in any way beneficial to generating an acceleration signal from a single scaled voltage signal, as is the claimed system. Instead, van Seeters teaches generating multiple capacitor signals, which is substantially different from generating a single capacitance signal. Nor does van Seeters disclose or suggest that any resulting signal will include

U.S.S.N. 10/604,537

10

03-0138

polarity information. Rather, van Seeters describes generating a signal as a result of the comparison of two capacitors receiving square wave generator pulses.

Watson is directed to a signal processing system and method. More importantly, Watson does not disclose or suggest a single moveable plate capacitor generating a charge displacement capacitance signal or that polarity information can be used as a determination of a direction of acceleration, as claimed in the present invention. Therefore, because each and every element of the claimed invention is not found in the prior art, claims 1, 7, and 8 are believed to be allowable.

Further, claim 1 has been amended to include that the capacitance signal is generated as a function of a signal from a power source in series with the moveable plate and said fixed plate in accordance with Figures 2 and 3. No new matter has been added. This claim language further illustrates that the invention includes a single moveable plate and a single fixed plate. In contrast, van Seeters includes two capacitors and a power source in parallel, as required to perform the functions of van Seeters. Including a single capacitor or accelerometer in series with the power source would frustrate the purpose of van Seeters, which is to compare signals from two capacitors. Further, Watson merely describes a signal processing apparatus that does not disclose or suggest a power supply applied to the accelerometer in series or otherwise. Therefore, because each and every element of claim 1 is not found in the prior art, claim 1 is believed to be allowable for at least this additional reason.

Claims 4-6, and 12-14 are rejected as being unpatentable over van Seeters in view of Watson as applied to claims 1, 7, and 8 above, and further in view of Gale et

U.S.S.N. 10/604,537

11

03-0138

al. Claims 4-6 and 12-14 depend from claims 1 and 8 and are believed to be allowable for at least this reason.

Claims 15-20, are rejected as being unpatentable over van Seeters in view of Watson, and further in view of Gale et al.

In response to this rejection, the Applicants have amended claim 15 to include a flexured diaphragm rather than a moveable plate from claim 20 (herein cancelled), which is not disclosed or suggested in the prior art.

Re claim 20 (now included in the amended claim 15), as depicted in fig. 3, van Seeters allegedly discloses a movable plate (e.g., capacitive plate 9) that is supported by a sprung diaphragm (14) (Col. 6, lines 62-63), which is, according to the Office Action, equivalent to a flexible diaphragm. Watson and Gale do not discuss flexible plates and are instead included as directed to other aspects of claim 15.

The system in van Seeters is conventional in that it includes an inflexible conductive mass or capacitor plate coupled to flexible hinges or a sprung diaphragm. (Column 6, lines 62-64.) van Seeters does not disclose or suggest a conductive mass that is itself flexible, as is recited in claim 15. The flexured diaphragm is defined such that "all the system flexure or movement is generated *within* or by the moveable plate." (Paragraph [0032], emphasis added.) van Seeters does not disclose or suggest an embodiment including a flexible conductive mass or flexible capacitor plate. Capacitor plates are substantially inflexible, and therefore, van Seeters surrounds the conductive mass with flexible hinges (sprung diaphragm) to generate system flexure.

The structure of the flexured diaphragm described by the Applicants is advantageous in that the flexured diaphragm is minimally susceptible to undesirable

U.S.S.N. 10/604,537

12

03-0138

capacitance signals due to angular momentum changes in the system, such as those occurring when the system is turning. Whereas, a conductive mass, such as the one used in van Seeters, is highly susceptible to such angular momentum changes.

Additionally, the claimed configuration has improved reliability over van Seeters in that the Applicant's flexured diaphragm is less subject to wear and tear than the flexible hinges of van Seeters during normal system operation. In other words, the flexible hinges and conductive mass as disclosed in van Seeters include limitations that are overcome by the Applicants.

Neither Watson nor Gale disclose or suggest a flexured diaphragm. Therefore, because each and every element of claim 15 is not disclosed or taught in the prior art, claim 15 is believed to be allowable. Claims 16-19 depend from claim 15 and are believed to be allowable for at least this reason.

U.S.S.N. 10/604,537

13

03-0138

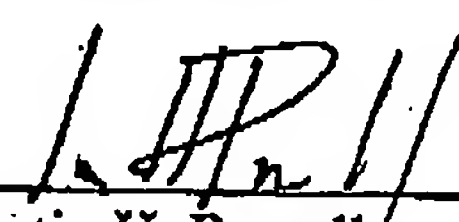
Conclusions:

In view of the aforementioned remarks, it is respectfully submitted that all pending claims are in a condition for allowance. A notice of allowability is therefore respectfully solicited. Please charge any fees required in the filing of this amendment to Deposit Account 50-0476.

The Examiner is invited to contact the undersigned at (248) 223-9500 if any unresolved matters remain.

Respectfully Submitted,

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